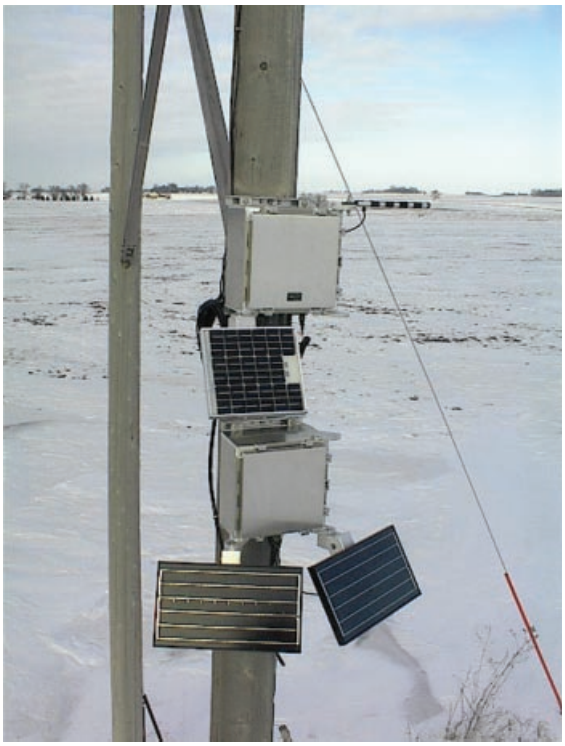
ENERGY UPDATE

www.energy.ca.gov/pier *Research Powers the Future* August 2002

Cure for the Power Shortage Blues: Real Time Ratings

How does California deal with rising energy prices, flickering lights and blackout threats? By looking to a new technology that can inform system operators what the conditions are on the state's transmission grid with real time data. The problem in California is not solely one of energy generation. A major problem is not enough energy transmission – or too many "transmission bottlenecks" that can't deliver adequate power where it is needed. And, often new power lines can't be brought on line quickly enough to solve the problem. When the power crunch comes, this technology provides a transition strategy to ride out the problem by providing real time ratings – and allocate energy wisely.



Real time ratings help reduce transmission bottlenecks.

Real Time Ratings

Thanks to the Energy Commission's PIER Program, real time ratings for transmission lines are already easing transmission bottlenecks and providing "virtual power lines" in California. This tool, in concert with other forecasting tools, allows energy experts to know California electricity demand, availability of power within the state, power imports and exports, and capacity out of service in real time. The ratings currently being used in California have already increased transition line capacity by 390 megawatts.

Clearly, new lines may be deferred if existing power lines can safely and reliably be run at a 10 percent higher rating under normal conditions.

While electric utilities traditionally have relied on static or "seasonal" estimates of power in a given period, real time ratings of power lines take into consideration the actual weather at the moment. We all know how unpredictable weather is. That's why the CAT-1 Transmission Line Monitoring System (CAT-1) developed by The Valley Group of Ridgefield, Connecticut, offers an innovative real time rating solution. CAT-1 measures the various tensions and sags in a transmission line, thus enabling the utilities to increase current flow on important feeders. This allows the CAT-1 to take advantage of rating increases that result from actual weather conditions.

It's Real Time in California

During peak demand times, California's transmission grid can be strained to the point of serious concern. When adequate electric power cannot move between different regions, prices rise, blackouts loom, and electricity cannot effec-

(Cont.)

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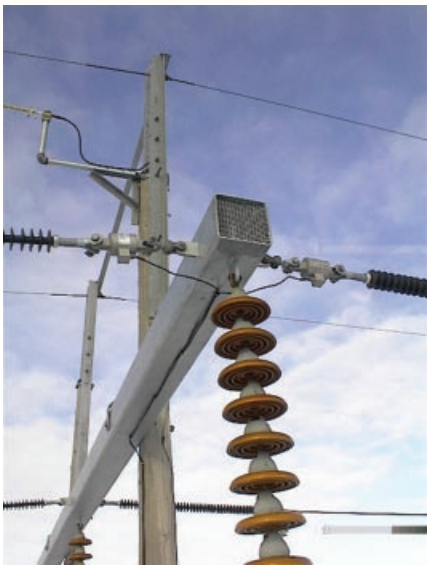

Load cells measure the changing tention and sag of a transmission line in real time

tively reach its markets.

Here's the crux of the problem. In the past decade no significant new transmission lines have been built in California – yet power demand throughout the state has continued to increase as the population and economy have expanded. Though several new transmission expansion projects are now planned, construction will take many years. Meanwhile, California's power grid will be challenged for the foreseeable future.

Clearing the Way for Path 15

One exceptionally stressed portion of California's transmission system is PG&E's Path 15. Located near Fresno, Path 15 consists of six transmission lines that limit the power transfer from southern to northern California. In the winter, when loads are high in northern California, the demand is the greatest on Path 15. It is quite expensive for these transmission lines to experience difficulties and bottlenecks. For consumers, it means higher prices and outages if Path 15 cannot meet demand.
To clear the way for Path 15, California's system operators need improved software to inform them more quickly what the conditions are on these transmission lines, using temperature and wind speed to analyze the ability to transfer power.
The Valley Group, in conjunction with the Energy Commission's PIER program and in cooperation with Power Delivery Consultants, Niskayna Power Consultants, BEST Systems, and Stanfield Systems, has developed preliminary software to better manage Path 15. The initial tests have been encouraging, and the company released a final report in April 2002.

This technology for Path 15 may save Californians hundreds of millions of dollars in the long run. And yet it was developed for $369,000.

On the Power Line Ahead

California's major utilities have embraced real time rating technology on a wider scale, and many of the CAT-1 rating systems may be operational on additional transmission lines in 2002. This could represent a solution for areas challenged by power demand and supply issues, such as Sacramento. In the end, real time ratings offer California's energy consumers more control over energy prices, the most efficient use of energy, and lessen the immediate need to build intrusive, new transmission lines. That's a good deal any time.

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